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<b>(21) International Application Number:</b> PCT/GB98/00264 <b>(22) International Filing Date:</b> 28 January 1998 (28.01.98) <b>(30) Priority Data:</b> 9701903.8 30 January 1997 (30.01.97) GB <b>(71) Applicant (for all designated States except US):</b> MERITOR HEAVY VEHICLE SYSTEMS LIMITED [GB/GB]; Llay Industrial Estate, Rackery Lane, Llay, Wrexham, Clwyd LL12 0PB (GB). <b>(72) Inventor; and</b> <b>(75) Inventor/Applicant (for US only):</b> FANNING, David, James [GB/GB]; 22 Bryn Avenue, Johnstown, Wrexham LL14 2SU (GB). <b>(74) Agent:</b> BARKER, BRETTELL & DUNCAN; 138 Hagley Road, Edgbaston, Birmingham B16 9PW (GB).		<b>(81) Designated States:</b> AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).  <b>Published</b> <i>With international search report.</i>
<b>(54) Title:</b> BRAKE DUST COVERS  <b>(57) Abstract</b> <p>A brake dust cover, e.g. for an internal expanding shoe and drum brake fitted to a trailer vehicle axle and operated by an S cam on a camshaft, comprises a main portion (12) and a minor portion (17). The main portion (12) has an inner periphery (12<sup>I</sup>) which extends around about half of an axle beam to which the portion is fitted for use, an outer periphery (12<sup>III</sup>) which extends to opposed extremities separated by an arc of no more than 90° centred on the axle beam axis, and an opening (12<sup>II</sup>) from the inner to the outer periphery allowing access, for example, to a camshaft bearing at a brake anchor bracket on the axle beam. The minor portion (17) overlaps and bridges the opening (12<sup>II</sup>) and is secured to the main portion (12). Its profile conforms to that of the main portion where there is overlap. An opening (18) in the minor portion (17) can receive a camshaft and, when the camshaft has been removed, the opening allows the camshaft bearing to be withdrawn through it without disturbing the dust cover.</p> <div data-bbox="990 1144 1299 1459"></div> <div data-bbox="958 1512 1356 1942"></div>		

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**BRAKE DUST COVERS**

This invention relates to brake dust covers, for example dust covers for brakes fitted to axles for trailer vehicles, which are conventionally  
5 fitted with S cam operated internal expanding shoe and drum brakes.

Conventionally, dust covers for such brakes comprise two half covers. The inner periphery of each half cover extends around approximately half the periphery of the axle beam and the outer periphery  
10 is lipped to fit with running clearance over a shoulder on the brake drum to minimise ingress of water and foreign matter. One half cover has a cut out portion to enable it to be passed over the brake camshaft. The half covers are secured to the brake anchor bracket with screws and they overlap a small amount at their radially extending edges. The dust cover  
15 has to be removed to gain access to the camshaft bearing which is fitted at the brake anchor bracket, for servicing and replacement.

According to the present invention there is provided a brake dust cover characterised in that it comprises a main portion having an inner  
20 periphery which in use extends around about half of an axle beam, an outer periphery which extends to opposed extremities, which are separated by an arc of no more than 90 degrees centred on the axis of the axle beam, and an opening provided between the corresponding ends of the inner periphery and the opposed extremities, and a minor portion adapted  
25 to overlap and bridge the opening and be secured to the main portion, the minor portion conforming to the profile of the main portion where it overlaps and having an opening to receive a camshaft, the arrangement being such that when the camshaft has been removed a bearing assembly for the camshaft secured to a brake anchor bracket can be released and

withdrawn through the opening in the minor portion without disturbing the dust cover.

The arc over which the outer periphery extends will vary dependant  
5 on the diameter of the dust cover and the width of the camshaft bearing.

A dust cover in accordance with the present invention provides a more rigid assembly than the prior art and facilitates servicing of the axle to which it is fitted.

10

An embodiment of the invention also comprises an axle assembly fitted with a dust cover as set out herein.

An embodiment of the invention will now be described by way of  
15 example with reference to the accompanying drawings, in which:

Figure 1 is an exploded view of parts of an axle assembly illustrating a prior art dust cover;

20

Figure 2 is a plan view of a main portion of a dust cover in accordance with the present invention;

Figure 3 is a view on line A-A of Figure 2;

25

Figure 4 is a plan view of a minor portion of the dust cover according to the present invention;

Figure 5 is a section on line D-D of Figure 4;

30

Figure 6 is a view on the lower surface of Figure 4, and

Figure 7 is a view on arrow J of Figure 4.

Referring to Figure 1, an axle beam 1 has a brake anchor bracket 2  
5 secured to it. A brake camshaft 3 is supported in bearings in, or secured  
to, anchor bracket 2 and a mounting 4. Brake shoes 5, 6 pivot on anchor  
pins, as 7, at one end and have cam rollers (not shown) at their lower  
(not shown) ends for engagement with the S cam on camshaft 3. A dust  
cover of a known kind comprises two halves 8, 9, the latter of which has  
10 a cut out 11 to enable it to be fitted over the camshaft 3 for assembly to  
the brake anchor bracket 2.

Referring now to Figures 2 and 3, it will be seen the profile of the  
dust cover in accordance with the present invention is, necessarily,  
15 similar to the prior art dust cover. A main portion 12, as illustrated, has  
an inner periphery 12<sup>1</sup> which can fit over the axle beam and an  
opening 12<sup>11</sup> extends from the inner periphery to the extremities of an  
outer periphery 12<sup>111</sup> and is sufficiently wide to allow servicing access to  
the camshaft bearing at the brake anchor bracket, for example as 2 on  
20 Figure 1 or as described and claimed in our prior British Patent  
No. EP 0504238.

Main portion 12 has two radially extending slots 13 and  
holes 14, 15 and 16. Holes 15 register with corresponding tapped holes  
25 in the brake anchor bracket to receive screws to secure the main portion  
to the anchor bracket.

Figures 4 to 7 illustrate a minor portion 17 of the dust cover having  
an opening 18 which, in this case, is designed to fit over a housing  
30 portion of a camshaft bearing secured to an anchor bracket. Two pins 19

are mounted on the minor portion 17 to be received in the holes 16 in the main portion 12 and holes 21 are provided to register with holes 14 of the main portion for securing the minor portion to the main portion. The pins 19 may be screw threaded to receive nuts to secure additionally the minor portion to the main portion. The minor portion 17 may have holes, as in the main portion, to register with tapped holes in the brake anchor bracket so as to secure the minor portion to the brake anchor bracket.

The opening 18 in the minor portion 17 allows access to the camshaft bearing securing screws. Following removal of the camshaft, for example after removal of the brake drum, the camshaft bearing can be released and removed via the opening 18 without disturbing the dust cover.

The minor portion 17 can be released from the main portion 12 to allow removal of the camshaft and bearing assembly, as described in E.P. 0504238

The dust cover of this embodiment has been described with reference to a round section axle beam but it could be adapted to be used with a square section axle beam.

## CLAIMS

1. A brake dust cover characterised in that it comprises a main portion (12) having an inner periphery (12<sup>1</sup>) which in use extends around  
5 about half an axle beam, an outer periphery (12<sup>11</sup>) which extends to opposed extremities which are separated by an arc of no more than 90 degrees centred on the axis of the axle beam, and an opening (12<sup>11</sup>) provided between the corresponding ends of the inner periphery (12<sup>1</sup>) and the opposed extremities, and a minor portion (17) adapted to overlap and  
10 bridge the opening (12<sup>11</sup>) and be secured to the main portion (12), the minor portion (17) conforming to the profile of the main portion (12) where it overlaps and having an opening (18) to receive a camshaft, the arrangement being such that when the camshaft has been removed a bearing assembly for the camshaft secured to a brake anchor bracket can  
15 be released and withdrawn through the opening (18) in the minor portion (17) without disturbing the dust cover.

2. A brake dust cover as claimed in claim 1 characterised in that the sides of the opening (12<sup>11</sup>) provided in the main portion (12) are  
20 substantially parallel.

3. A brake dust cover as claimed in claim 1 or claim 2 characterised in that pins or like protrusions (19) on one portion (17) engage in corresponding holes or recesses (16) in the other portion (12) to locate  
25 one portion with respect to the other.

4. A brake dust cover as claimed in claim 3 characterised in that there are two of said pins or like protrusions (19) provided on the minor portion (17) to engage in corresponding holes or recesses (16) in the main  
30 portion (12).

5. A brake dust cover as claimed in claim 3 or claim 4 characterised in that the pins or like protrusions (19) are adapted to provide a fastening to secure the two portions (12, 17) of the dust cover together.

5

6. A brake dust cover as claimed in claim 5 characterised in that the pins or like protrusions (10) are screw threaded to receive nuts to secure the two portions (12, 17) of the dust cover together.

10 7. A brake dust cover as claimed in any preceding claim characterised in that the main portion (12) is adapted to be secured to a brake anchor bracket and the minor portion (17) is secured to the main portion (12).

8. A brake dust cover as claimed in claim 7 characterised in that the  
15 minor portion (17) is adapted to be secured to a brake anchor bracket.

9. An axle assembly characterised in that it includes a dust cover as claimed in any preceding claim.



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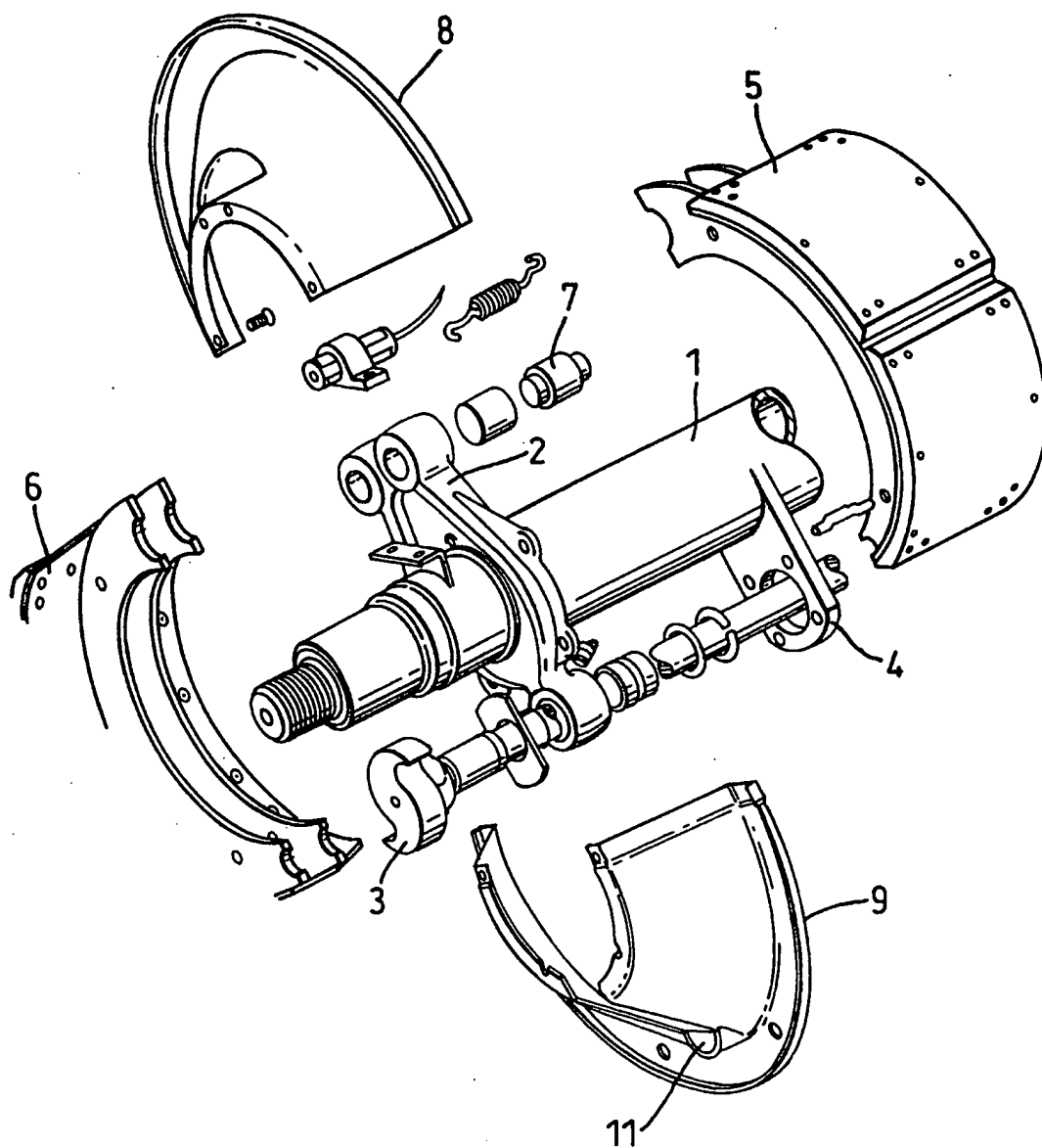


Fig. 1

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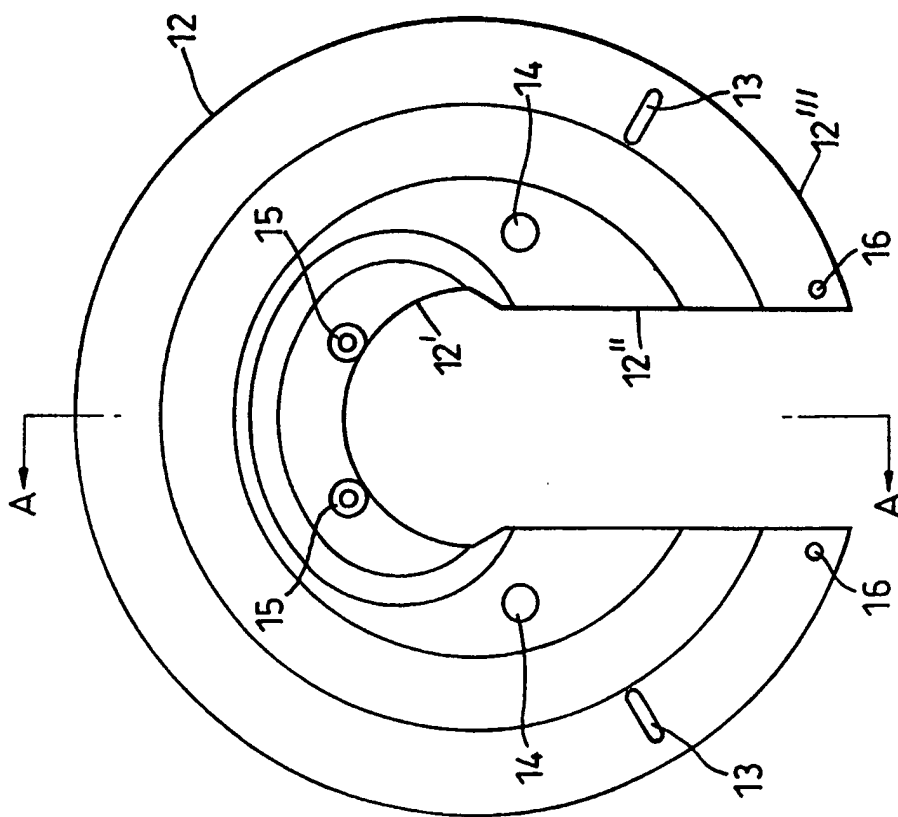


Fig. 2

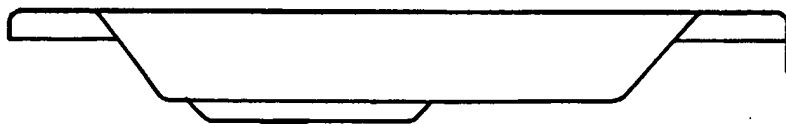


Fig. 3

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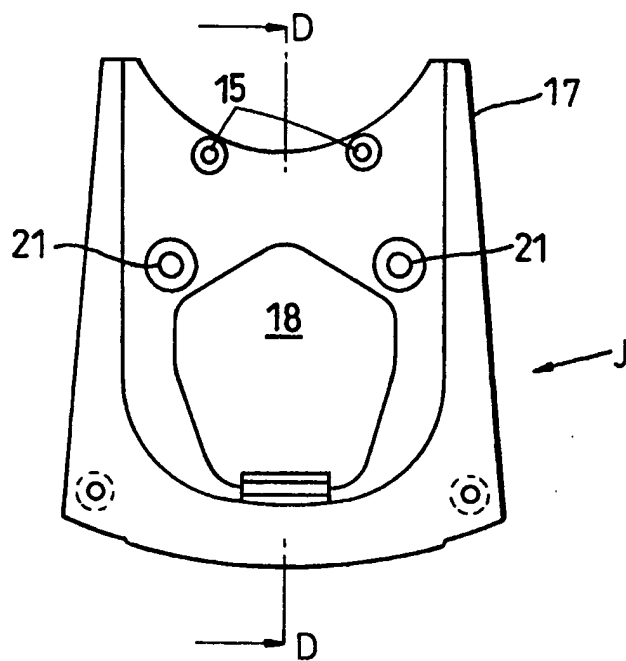


Fig. 4

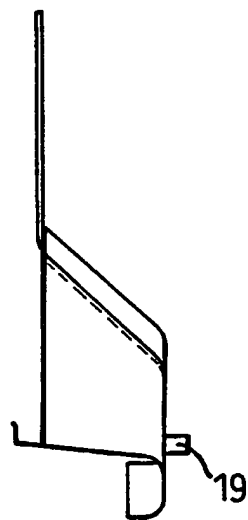


Fig. 5

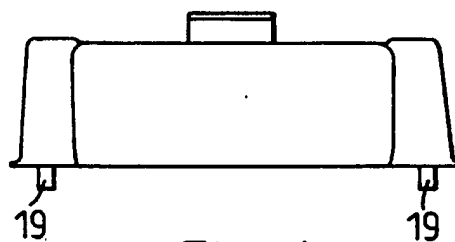


Fig. 6

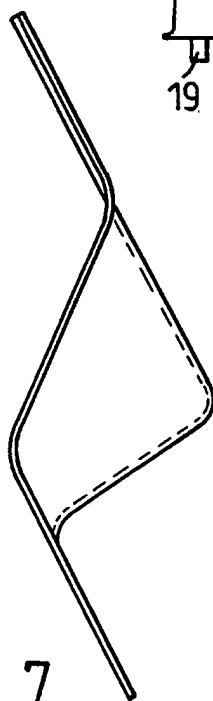


Fig. 7

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 98/00264

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 6 F16D51/22

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 F16D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 91 09235 A (RUBERY OWEN ROCKWELL LTD) 27 June 1991 see abstract; figures 1-3 see page 2, line 16 - page 4, line 15 see page 6, line 14 - line 27 see page 7, line 12 - line 31 & EP 0 504 238 A (RUBERY OWEN-ROCKWELL LTD.) cited in the application ---	1,9
A	US 4 164 273 A (MCELROY EUGENE L) 14 August 1979 see the whole document ---	1,2
A	US 2 284 357 A (ASH) 26 May 1942 see figure 5 see page 3, left-hand column, line 15 - line 22 -----	1,2

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

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